345

276

208 TGTAGGTTGGGCAAAAACGAGGAAGATTGCTTCTCAATTTGGAAGATGATGAACAGCCGAAGAAGAAAA



o) O) 139 TTTCTTGTTCATATGATTAACTTCTAAACTTGTGTATAAATATTCTCTGAAAGTGCTTCTTTGGCATA 207 150 NdeI TagI AluI Saci HindIII HhaI XbaI NdeI pgN1 TagI

FIG. 1A

277 TAAGAATAGGCAGTCCTGCTACTCAATGGATCTCAGTCTATAACGGTCGTCGTCCTCTATGAAACAGAGGT

Sau3AI DdeI

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346 AACACATTTTTGCATATACACTTTGATAGTTCCTCACTAACTGTGTAATCTTTTGGTAGATATCATA ECORV

483 415 CAATGTTGGAGAGACAANGCTGCGCJRRCATATACAGAAGGGAAATGAAGATGGCCTTTTGATTAGCTG HaeIII Nael Mspi Hpall Alul Hhal 440 440

552 484 TGTAGCATCAGCAGCTAATCTCTGGGCTCTCATCATGGATGCTGGAACTGGÁTTCACTTCTCAAGTTTA HinfI AluI

HinfI Mspi Hpaii 564

DdeI

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	Sacı	Alur	
100	691		759
	760	O TTAGTGAATAATAAACTTATTATCAAAAAGTCTTCATTGACTTATTTAT	8 8 8
	829		897
	8 6 8 8	TagI         rggaaagaattttcatgtaacctccatgacaactgctggtaatcgttgggggtgtggtaatgtcgagg 909	996
	967	AACTCTGGCTTCTCTGATCAGGTAGGTTTTTGTCTCTTATTGTCTGGTGTTTTTATTTTCCCCTGATAG 982 982	1035
		AluI RsaI	
	1036	 1036 TCTAATATGATAACTCTGCGTTGTGAAAGGTGGTGGAGCTTGACTTTTTGTACCCAAGCGATGGGATA 1	1104

# FIG. 1C

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1105 CATAGGAGGTGGGAAATGGGTATAGAATAACATCAATGGCAGCAACTGCGGATCAAGCAGCTTTCATA 1173 AluI Sau3AI

1174 TTAAGCATACCAAAGCGTAAGATGGTGGATGAAACTCAAGAGACTCTCCGCACCACCGCTTTCCAAGT 1242

1243 ACTCATGTCAAGGTTGGTTTCTTTTAGCTTTGAACACAGATTTGGATCTTTTGTTTTGTTTTCCATATAC 1311 Sau3AI AluI Scal RsaI

AluI DdeI

HinfI RsaI

1320

1381 CATCAATATGCTATGGCAGGACAGTGTGGTGATACACACTTAAGCATCATGTGTTGTGTTAGAAAG 1449 1450 CCGAAGACAATTGGAGCGAGCCTCAGGGTCGTCATAATACCAATCAAAGACGTAAAACCAGACGCAGTC 1518 MstII 1472 DdeI

Tth1111

10 FIG.

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TRADEPAR		
TRAL		TAACAAAGAGAAGATGCA 1587
	Rsal	   TCTTTGGTTGAATGTGATGAAGGGATGTCTTGGTATGTAT
	•	TCTTTGGTTGAATGTGA

ECORV 1564 Alui Drai

1519

DdeI

HinfI TagI

HinfI

1864 AATGACTIGIGGACIAIGIICIGÄATICICAITAAGITTITIAITITIGAAGITIAAGITITACCTIC 1932 ECORI

FIG. 1E

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1933 TTTTTGAAAATATCGTTCATAAGATGTCACGCCÅGGACATGAGĆTACACATCACATATTAĞCATGĊA 2001 1968 1978 AluI BstNI

NdeI AluI

2071 CAÙGCAATATTTACACGTGATCGCCATGCAAATCTCCATTCTCACCTATAAATTAGAGGCTCGGCTTCA 2139 2073 2073 Sau3AI Sphi Naii

2140 CTTTTTACTCAAAACTCATCACTACAAAACTTACACAAAAGGGGGAACAAGCTCTTC 2200 Met 2195

AluI

FIG.

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FIGURE 2A



60

207 414 NdeI TITCTTGTTCAPATGATTAACTICTAAACTTGTGTATAAATATTCTCTGAAAGTGCTTCTTTTGGCAPA 150 TGTAGGTTGGGCAAAAACGAGGAAGATTGCTTCTCAATTTTGGAAGAGGATGAACAGCCGGAAGAAAA TAAGAATAGGCAGTCCTGCTACTCAATGGATCTCAGTCTATAACGGTCGTCGTCCATGAAACAGAGGT 309 AAAACATTTTTTGCATATACACTTTGAAAGTTCCTCACTAACTGTGTAATCTTTTGGTAGATÄTCACTA HindIII Saci Length = 4325Sau3AI DdeI HhaI XbaI NCG-I86 Linear Lambda CGNI-2 xhoi Tagi Avai

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<u>ል</u> ይ	55.2	621	0 6 9	759
AluI   ATTAGCTG 481	CAAGTTTA	IGATTTGT	aaagaac	STTAGTGT
HaeIII   GAAGATGGCCTTTTG	HinfI   ACTGGATTCACTTCT	Hinfi    AATTAAGAATCAATT  606	ltatggaacaatggg	: CTTAGTTGTTATGTCAAAAGGTTAGTGT FIGURE 2B
Tatacaaaagggaaat	CATCATGGATGCTGGA	AATAATCAGTTGAAGC	TCCCCGCAGGACTGGA	Saci Alui     AACGGGAGCTCTTTAG A2.9
HincII HhaI HaeIII DdeI BstEII BalI	AluI   ctaatctctgggctct 498	I TTCCTACACAAGGT	ACTTACCTTATGTTT"	AluI   ATAGCTGGTTCAGAT 710
HincII HaeIII DdeI BstEII BstEII BalI	AluI 	MSPI HDAlI   TGAGTTGTCACCGGTCTTCCTACACGAGGTAATAATCAGTTGAAGCAATTAAGAATCAATTTGATTTGT 564	Ddel     AGTAAACTAAGAAGTTACCTTATGTTTTCCCGGAGGACTGGATTATGGAACAATGGGAAAAGAAC	Sac AluI AluI AluI AluI AluI AluI AluI AluI

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Scal Rsal



TTAGTGAATAATAAACTTATACCACAAAGTCTTCATTGACTTATTTAT	828
Hinfl	
   GAACTACTTATTCTCAGGGGGGGGGGGGGGGGGGGGGGG	8 6 7
XmnI 	996
Sau3AI Bcli    ACTCTGGCTTCTCTGATCAGGTAGGTTTTTGTCTTGTCT	1035
Alui Rsai           CTAATATGATAAACTCTGCGTTGAAAGGTGGTGGTGGGGGTTGACTTTTTTGTACCCAAGCGATGGATAC 1074 1087	1104
Sau3AI AluI    -  ATAGGAGAGAATAGGATCAATGGCAGCAACTGCGGATCAAGCAGCTTTCATAT   1155 1165	1173

## FIGURE 2C

TAAGCATACCAAAGCGTAAGATGGTGGATGAACTCAAGAGACTCTCCGCACCACCGCCTTTCCAAGTA 1242

HinfI

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н	1311	1380	1449		1518		1587		1656
Dde I 	rtegritccararaci 1311	RSAI    CTGTACATTGCATCA 1370	CCAAAGACAATTGGAG		ICTTIGGTTGAATGTA		ATTAGTAGTAGAAATA		CATITGCGTTGTTAA
Sau3AI 	CAGATTTGGATCTTTTGT 1285	HinfI   AGGACAAATGGGCGAAGAA'	rtaagcatcatgtggaaag		dgtaaaaccagacgcaacc		raacaaagagaagatggaj	BCORV	rtatcttattGatatcatco 1635
AluI	CTCATGTCAAGGTTGGTTTCTTTAGCTTTGAACACAGATTTTGATCTTTTTGTTTTGTTTTCATATACT 1268	Ddel Alul Alul Hinfl Rsal Haali Avali Avaligas Avaligas Avaligas Avaligas Avaligas Avalian	ATATGCTATGGCAGGACAGTGTGCTGATACACACTTAAGCATCATGTGGAAAGCCAAAGAAGTTGGAG		 CGAGACTCAGGGTCGTCATAATACCAATCAAGACGTAAAACCAGACGCAACCTCTTTGGTTGAATGTA 1456 1454	RsaI 	 ATGAAAGGGATGTCTTGGTATGTATGTACGAATAACAAAGAGAAGATGGAATTAGTAGTAGAAATA 1548		 TTTGGGAGCTTTTTAAGCCCTTCAAGTGTGCTTTTTATCTTATTGATATCATCCATTTGCGTTGTTTAA 1596
	CTCATGTCAAGGTTG	Dder Avali Alui       TAGGACCTGAGAGCTTTT 1315 1325	ATATGCTATGGCAGG	HinfI DdeI	CGAGACTCAGGGTCG7 1456 1454		ATGAAAGGGATGTGT	IniA	· TTTGGGAGCTTTTTA? 1596

### FIGURE 2D

TGCGTCTCTAGATATCTTCCTATATCTTTCTCAGTGTCTGATAAGTGAAATGTGAGAAAACCATACCAA 1725 1664

DdeI

XbaI

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ACCAAAATATTCAAATCTTATTTTAATAATGTTGAATCACTCGGAGTTGCCACCTTCTGTGCCAATTG 1794 HinfI

1863 TGCTGAATCTATCACACTAGAAAAAAACATTTCTTCAAGGTAATGACTTGTGGACTATGTTCTGAATTC

1932 TCATTAAGTTTTTATTTTTCTGAAGTTTTAAGTTTTTACCTTCTGTTTTGAAATATATCGTTCATAAGATG

Sphi Sau3AI AluI BstNI

1950 1973 1971 Sau3AI HAI Ndel Nsli Sau3AI

2070

ATCTCCATTCTCACCTATAAATTAGAGCCTCGGCTTCACTCTTTACTCAAACCAAAACTCATCACTACA

AluI

2208 MetalaasnLysLeuPheLeuValSerAlaThrLeuAlaLeuPhePheLeuLeuThr

2164

FIGURE 2E

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FIGURE 2F



2277	2346	2415	SacI uI 2484 79 2481
NaeI MspI HpaII HaeIII       AATCCAGCCGGCCAITT ASnProAlaGlyProPhe 2271 2269	HindIII .I .TGCCAACAATGGCTCCAC !CysGlnGlnTrpLeuHis 7 2325	TTTGATTTTGAAGACGAC PheAspPheGluAspAsp	Sac AluI     TGCTGCAACGAGCTCCAC : CysCysAsnGluLeuHis 2479 2479
TagI SalI HindII HindII HaeIII HaeIII  AccI               AscriccTCCGTCTACAGGACGGTTGTGGAAGTCGAAGATGCAAATCCAGCCGGCCCATTT AshalaSerValTyrArgThrValValGluValAspGluAspAspAlaThrAsnProAlaGlyProPhe 2241 2220 2239 2240	Alu 	MspI AvalI Hpali Avali Alui Taqi Aagcagcaatgcagtccggtagtggtagtcgagaccctcgatggtgagttttgatttttgaagacgac LysGlnalaMetGlnSerGlySerGlyProSerTrpThrLeuaspGlyGluPheAspPheGluAspAsp 2364 2372 2379 2388	HaeIII Alu ApaI HaeIII 

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2553 255I CAGGAAGAGCCACTTTGCGTTTGCCCAACCTTGAAAGGAGCATCCAAAGCCGTTAAACAACAGATTCGA GlnGluGluProLeuCysValCysProThrLeuLysGlyAlaSerLysAlaValLysGlnGlnIleArg Hinfl 2548 BstNI

2622 CAACAACAGGGACAACAAATGCAGGGACAGCAGATGCAGCAAGTGATTAGCCGTATCTACCAGACCGCT GlnGlnGlnGlnGlnHetGlnGlyGlnGlnMetGlnGlnValIleSerArgIleTyrGlnThrAla

2961 2688 ACGCACTTACCTAGAGCTTGCAACATCAGGCAAGTTAGCATTTGCCCCTTCCAGAAGACCATGCCTGGG BstNI  $\verb|ThrHisLeuProArgAlaCysAsnIleArgGlnValSerIleCysProPheGlnLysThrMetProGly|\\$ AluI

CCCGGCTTCTACTAGATTCCCAAACGAATATCCTCGAGAGTGTGTATACCACGGTGATATGAGTGTGGTT Acci 2724 2725 Tagī Aval XhoI HinfI 2707 ProGlyPheTyr HpalI ApaI HaelII MspI 2694

FIGURE 2G

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	2829	2898		2967		3036		3105
Rsal	GTTGATGTATGTTACACACTACATAGTCATGGTGTGTTCCATAAATAA	acci         actccgtagacggtaataaagagaagttttttttttttt	Scal	 Taacaacagatacaccaaaaagaaaacaattaatctatattcacaatgaagcagtactagtctattgaa	Sau3AI	CATGTCAGATTTTCTTATTAATGTCTAATTAAGCCTTCAAGGCTAGTGATGATAAAAGATCATCCA 3028	Sau3AI BclI	   ATGGGATCCAACAAAGACTCAAATCTGGTTTTTGATCAGATACTTCAAAACTATTTTGTATTCATTAAA   3041   3053   3069
HindII	GTTGATGTATGTTAACACTACATAGTCAT 2771	acci   Tactccgtagacggtaataaaagagaag7 2838		TAACAACAGATACACCAAAAAAGAAAACA		CATGTCAGATTTTCTTTTTTTTAAATGTC:	Sau3AI BamHI HinfI	ATGGGATCCAACAAAGACTCAAATCTGGT 3041 3041

FIGURE 2H



3312 TTATGCAAGTGTTCTTTTATTTGGTGAAGACTCTTTAGAAGCAAAGAACGACAAGCAGTAATAAAAAA 3135 ACAAAGTTCAGTTTTAAGATTTGTTATTGACTTATTGTCATTTGAAAAAATATAGTATGATATTAATATA GTTTTATTTATATATGCTTGTCTATTCAAGATTTGAGAACATTAATATGATACGTCCAGATATCCAA

3450 TATATTAAGTTTCATTTCTGTTCAAACATATGATAAGATGGTCAAATGATTATGAGTTTTTGTTATTAC CTGAAGAAAAGATAAGTGAGCTTCGAGGTTTCTGAAGGGTACGTGATCTTCATTTCTTGGCTAAAAGCGA 3421 Sau3AI RsaI TagI

ATATGACATCACCTAGAGAAAGCCGATAATAGTAAACTCTGTTCTTGGTTTTTGGTTTAATCAAACCGA

ACCGGTAGCTGAGTGTCAGCAACATCGCAAACCATATGTCAATTCGTTAGATTCCCGGTTTAA 3588 3522 3528 MspI HpalI HinfI Ndel Hpall AluI IdsM

FIGURE 21

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3657	3726
MSDI Hpali   GTTGTAAACCGGTATTTCATTTTGGTGAAACCCTAGAAGCCAGCC	HinfI  HincII  BStNI  AACGAGAAGTCACCACCTCCACTAAAACCCTGAACCTTACTGAGAGAGA

3795

CAAATAAAACCCGAAGATGAGACCACCACGTGCGGCGGGACGTTCAGGGGGACGGGGAGGAAGAAATGR

3864 Avall CCTTTGGTGGTGGATATCGTGACGAGGACCTCCCAGTGAAGTCATTGGTTCGTTTACTCTTTTCTTAG DdeI 3930 FIGURE 2J Avall 3892 ECORV 3880 Avali Alul

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TagI HinfI	HindIII AluI DdeI	
		4002
alui       GCTTTGAATGTGAATC 	AluI XmnI HinfI DdeI	4071
Hinf    GCACTTTTGTTAGATTC 4085	HinfI 	4140
HincII       ACAAGGTTAACTTTG1   4146	TGTTGGTTATAACAGAAGTTGCGACCTTTCTCCATGCTTGTGAGGGTGATGCTGTG	4209
Avali Alui Ddei 	dei sau3AI   CAGGCGAAGATCCCTTACTTCAATGCCCCAATCTACTTGGAAAACAAGACAGAT	4278

FIGURE 2K

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4325

HincII Acci EcoRI TGGGAAAGTTGATGAATCCAAGCTTGGGCTGCAGGTCGACGAATTC TaqI SalI PstI 4:r HindIII Sau3AI AluI

4302 4300

4294

FIGURE 2L

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Brassica campestris ACP Genomic Sequence

69 1 AAGAGTATGTCTACTACTACTACTATAATCAAGTTTCAAGAAGCTGAGCTTGGCTCTCACTTTATAT Alul Alul DdeI ACCI

138 70 GTTTGATGTTGTTGCAGGTATGGTAAATCATGGAAAGAGATAAAGAATGCAAACCCTGAAGTATTGG

207 139 CAGAGAGGACTGAGGGGGAGCATGTCACTTTTGTGTTACTCATCTGAATTATCTTATATGCGAATT 149 DdeI

276 277 GGTAGCGGTAACAAGTTTTATATTGCTATGAÁG<u>C</u>TTTTTGCCTGCGTGACGTATCAGCAGCTGTGGAG 310 308 208 GTAAGTGGTÄCTAAAAGGTTTGTAACTTTTGGTAGGTGGATTTGAAGGATAAATGGAGGAACTTGCTTC 217 Pouli HindIII 308 310 308 AluI RsaI

FIGURE 3A

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690



MspI

Hpall

HaeIII

346 AAGATGGTATTAGAAAGGGTCTTTTCACATTTTGTGTŢGTGACAAATATTAATTCGGĊĊGGTATGGTTT 404

404

414

415 GGTTAAGACTTGTTGAGAGACGTGTGGGGTTTTTTGATGTATAATTAGTCTGTGTTTAGAACGAAACAA

483

552

Tth111I 

553 CTTTCTCTCAAGATCTGATTGGTAAGGTCTGGGTGGTAGTACTGTTTGGTTTAATTTGTTTTGACTATT Scal RsaI Sau3AI Bglii

622 GAGTCACTGTGGCCCATTGACTTTAAATTAGGCTGGTATATTTTTTTGGTTTAAAACCGGTCTGAGATAG Dral Mspl Ddel Hpall 678 678 DraI HaeIII Hinfi

FIGURE 3B

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691 IGCAAITTICGAITCAGICAAITITIAAAITCTICAAGGIAAIGGGCIGAAIACITGIAIAGITITIAAGAC 759 828 897 898 TAAAACGTCATCGTTTTGAGTGCACCAAGCTAAATGTAGCCAGGCCTTAAAAGACTTAACAGGCCTTAA 939 939 829 GTAGCCAGGCCTTAAAAGACTTAACAGGCCTTAAAAGACTTAACATTCCTTAAAAGGCCCATGTTATCA 835 886 760 TTAACAGGCCTTAAAAGGCCCATGTTATCATAAAACGTCATTGTTTAGAGTGCACCAAGCTTATAAAT 768 778 StuI HaeIII 961 961 HindIII AluI Haelll HaeIII StuI 942 942 BstnI HaeIII AluI StuI 857 DraI HaeIII ragi Hinfi StuI HaeIII HaellI StuI 838 838 BstNI

# FIGURE 3C

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H 1036 GGGACATCACGCTCTTGTACACTCCGCCATCTCTCTCTCGAGCAGATCTCTCGGGAATATCG 1104

1078 1085 1093 1103

1079 1085

1079 Tablili

Tablilii
                                      967 AAGGCCCATGTTATCATAAAACGCCGTCGTTTTGAGTGCACCAAGCTTATAAATGTAGCCAGCTACCTC 1035
                                                                                                                                                                                                                                                                                                  1105 ACAATGTGGACCACTTTCTGCTCTTCCGTCTCCATGCAAGCCACTTCTCTGGTAATCTCATCTCCTTCT 1173
                                                                                                                            TagI
            AluI AvaI
                                                    1029 1034
                                                                                                                            AvaI
                                                                                                               Sau3AI
                                                                                                                          Bglii
                                                                                                                                                                                                                                                                                                                METSerThrThrPheCysSerSerValSerMETGlnAlaThrSerLeu
HindIII
              AluI
                                                       1012
                                                                                                               TagI
                                                                     1010
                                                                                                  XhoI
                                                                                                                              AvaI
                                                                                                                                 RsaI
                                                                                                                                                                                                                                   Tagi
Sali
                                                                                                                                                                                                                                                                                                                                   1112
                                                                                                                                                                                                                                                              HincII
                                                                                                                                                                                                                                                                             Acci
                                                                                                                                                                                                                                                                                                                                                             1111
                  HaeIII
                                                                                                                                                                                                                                                                                                                                                1110
```

FIGURE 3D

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Hinfl Sau3AI TagI AluI Sau3AI Sau3AI Sau3AI BclI 1193 1193 Sau3AI Sau3AI Bcli Hincll

1450 TGGAACAACAGGCAGCAACAACGAGGATTAGTTTCCAGAAGCCAGCTTTGGTTTCAACGACTAATCTC 1518 TGATCATTTCAATTTGGATTTGCAATCTTGTGTGACATTTGAGGCTTGTGTAGATTTCGATCTGTATTCA 1380 AlaAlaThrThrArgIleSerPheGlnLysProAlaLeuValSerThrThrAsnLeu 1369 1368 DraI AluI HinfI 1313 1313 1312

FIGURE 3E

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FIGURE 3F



	1587	1656	1725	1794	1863
Dael -	GTTCTCATTCTCAG			ATCATTCTCTTATG	
Hhai	  TCCTGCGCGGTAT  SerCysAla  1568	STCTATTTGGTTTA	I rcactcaaagacga SerLeuLysaspas	actgtaagtcatca thr	DdeI   .crgagrgrrrrgca 1837
	ACTCGTTTCTCAAT( ThrArgPheSerIle	RSAI   TACTCTCTCTAATTC 1616	AluI   TTAAGAAGCAGCTAT(	HinfI TaqI 	I TTTTAACATATTAA(
	TCCTTCAACCTCCGCCGTTCAATCCCCACTCGTTTCTCAATCTCCTGCGCGGTATGTTCTCATTCTCAG SerPheAsnLeuArgArgSerIleProThrArgPheSerIleSerCysAla 1584	TagI AluI RsaI	AluI         AGACGGTTGAGAAGTGTTAAGAAGCAGCTATCACTCAAAGACGACCAAAAGGTCGTTG   LThrValGluLysValSerLysIleValLysLysGlnLeuSerLeuLysAspAspGlnLysValValA   1676	Sau3AI HinfI TaqI CGGAGACCAAGTTTGCTGGAGCAGATTCTCTCGACACTGTAAGTCATCATTCTCTTATG laGluṃhrLysPheAlaAspLeuGlyAlaAspSerLeuAspThr 1743 1756 1763	AACTTGAAGAGTTTG1
	1519 TCCTTCAACCT SerPheAsnLe	TagI	1657 AGACGGTTGAG luThrValGlu	1726 CGGAGACCAAG laGluThrLys	DdeI Sphi
	-				

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1864 GTGATGGGTTTAGAGGAAGAGTTTGATATCGAAATGGCTGAAGAAGCTCAGAAGATTGCTACTGT 1932
ValMetGlyLeuGluGluGluPheAspileGluMetAlaGluGluLysAlaGlnLysIleAlaThrVal
                                                                                                                                                                                                                          2002 AGGCTTTGTTGGTTTGTTGTTTTCATAATCTTCCTGTCATTTTCTTTTTCTTTAATGTGTCAAGCGAC 2070
                                                                                                                                            1933 GAGGAAGCTGCTGAACTCATTGAAGAGCTCGTTCAACTTAAGAAGTAATTTTAGTATTAAGAGCAGCCA 2001
                                                                                                                                                                                                                                                                                                                      HincII
                                                                                                                                                                                                                                                                                                                                                 2119
2120
2121
DdeI
                                                                             1914
                                                                                                                                                                                                                                                          Taqi
Sali
                                                                                                                                                                                                                                                                                                 Acci
                                                                                                                                                                                                                                                                                                                                       2121
            AluI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FIGURE 3G
                                                                                                                                                    GluGluAlaAlaGluLeuIleGluGluLeuValGlnLeuLysLys
1940
                                                                                                                                                                                                                                                                                     Sau3AI
                                                                                                                                                                                                                                                                                                   NCOI
                                                                                 1893
                                                                                                            SacI
                                                                                                                                                                                          1962
                 ECORV
                                                                                                                        AluI
                                                                     1891
                                                                                                                                                                                                                                                                                                                                                                                                                                        2140 TACACATGAAAGCTT 2154
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2152
                                                                                                                                                                                                                                                                                                                                                                                                                AluI
                                                                                                                                                                                                                                                                                                                                                                                                 HindIII
                                                                                                                                                                                                                                                                                                       DraI
                                                                                                                           AluI
```

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Brassica Campestris Seed Specific cDNA-EA9

Sau3AI

TTCAACTTTTCTAAACCAAATGGCTTTAACACAĞATCCAAATCTTTCTCATTGTCTCTCTAGTCTCATC METAlaLeuThrGlnIleGlnIlePheLeuIleValSerLeuValSerSe

69

Sau3AI TagI

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ClaI

TagI

70 ATTCAGTTTATCGATCACTCTTTCTCGTCCATTACTCGATGAAGTCGCCATGCAAAAGAGACATGCCGA rPheSerLeuSerIleThrLeuSerArgProLeuLeuAspGluValAlaMETGlnLysArgHisAlaGl

138

82

HaeIII

uTroMETThrGluHisGlyArgValTyrAlaAspAlaAsnGluLysAsnAsnArgTyrAlaValPheLy 157

207

Complete nucleotide sequence of B. campestris cDNA EA9. The longest open reading frame is designated by three letter amino acid code. PolyA tails are evident at the end of the sequence and a potential polyadenylation signal is underlined.

FIGURE 4A

483

Sau3AI

Sau3AI

TGATTGGAGGAAGAAGGAGCTGTGACTCCTATCAAGGATCAAGGCTTATGCGGATCTTGTTGGGGCGTT IASpTrpArgLysLysGlyAlaValThrProIleLysAspGlnGlyLeuCysGlySerCysTrpAlaPh 452 468

1	3910
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N. F.	TO TRADENSON
( RE	E. I

	276	
DraI 	GTTTÅAACTCGCGGTGAA rPheLysLeuAlaValAs 263	
HDAII	208 ACGCAACGTGGAACGCATTGAACGCTTAAATGACGTTCAATCCGGACTAAACGTTTAAACTCGCGGTGAA 276 sArgasnValGluArgIleGluArgLeuAsnAspValGlnSerGlyLeuThrPheLysLeuAlaValAs 256	
	208	

345	47.4
CAAAGGAAACTCTGTGTT 1eLysGlyAsnSerValLe	Hpall   ATGCGTTGCCGGTTTCTGT SpAlaLeuProValSerVa 405
RSAI    -   TCCGTTCTATGTACACTGGTTT   SheArgSerMETTYrThrG1yPF	Rsal KpnI   GGTACCAAAACGTTTCTTCTGA RGTYrGlnAsnValSerSerAs 378
Sau3AI EcoRI RSAI	RSAI  KpnI
277 0	346 5
<b>6</b> -4	

# FIGURE 4B

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484 TICAGCIGIIGCGGCIATAGAAGGAGIAGCACAGAIAAAAGAAAGGGAAACICAITITCIITGICIGAACA eSerAlaValAlaAlaIleGluGlyValAlaGlnIleLysLysGlyLysLeuIleSerLeuSerGluGl Poull Alui

553 AGAGCTTGTCGACTGCGACACAAACGATGGTGGCTGCATGGGCGGTTTGATGGATACAGCGTTTAACTA HincII AluI AccI TaqI SalI

 ${\tt nGluLeuValAspCysAspThrAsnAspGlyGlyCysMETGlyGlyLeuMETAspThrAlaPheAsnTy}$ 562 561 557

622 CACAATAACTATTGGCGGCTTAACCTCTGAATCAAATTATCTTATAAAAGCACAAAAGGACTTGCAA rThrileThrileGlyGlyLeuThrSerGluSerAsnTyrProTyrLysSerThrAsnGlyThrCysAs Hpall

691 CTTCAATAAAACTAAACAGATAGCAACTTCTATCAAAGGTTTTGAGGATGTCCÖGGCTAACGATGAGAA  ${\bf nPheAspLysThrLysGlnIleAlaThrSerIleLysGlyPheGluAspValProAlaAspAspGluLy}$ 

FIGURE 4C

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760 AGCCCTAATGAAGGCAGTGGCACCACCCGGTTAGCATTGGAATAGCGGGAGAGATATTGGTTTCCA SAlaLeumETLysAlaValAlaHisHisProValSerIleGlyIleAlaGlyGlyAspIleGlyPheGl

829 ATTCTATTCGTCCGGTGTGTTCAGCGGAGAATGCACAACTCATCTTGATCACGGGGGTAACTGCGGTTGG Sau3AI BclI Hpall

898 ATACGGCCGATCTAAAAACGGATTAAAGTACTGGATCCTCAAGAATTCATGGGGACCAAAATGGGGAGA  ${\tt nPheTyrSerSerGlyValPheSerGlyGluCysThrThrHisLeuAspHisGlyValThrAlaValGlup} \\$ 875 875 ECORI Sau3AI BamHI RsaI Scal Sau3AI HaeIII

 $\mathtt{yTyrGlyArgSerLysAsnGlyLeuLysTyrTrpIleLeuLysAsnSerTrpGlyProLysTrpGlyGl}$ 931 927

Sau3AI ECORV

967 ACGTGGATACATGAGGATCAAAAAGATATCAAGCCTAAAACACGGACAATGTGGTCTTGCCATGAATGC 1035  ${\tt uargGlyTyrMETArgIleLysLysAspIleLysProLysHisGlyGlnCysGlyLeuAlaMETAsnAlua}$ 

FIGURE 4D

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HindIII AluI Hpall

RsaI

1036 TTCGTACCCAACTATGTGAAAAATCGGTTCAATATCCGGTTAAGCTTTAG<u>AATAA</u>TGTGTGTGTTGG 1104 aSerTyrProThrMET 1041

1081 1079

1105 TTATAATTTAAGACTCTGTTGCATGTAATTTGTGAAATGGTAAGTTTATGTGATGCAAAAGATTTGATA 1173

1174 AAAAAAAAAAA 1186

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FIGURE 4E



3H11	TTTTTTTTGAGCAAAGGGCAACTCAGATATCCAAAGATGAATCCAACATATA	51
3н11	GCTTACAGCTGGGAGAACATTGTCTAACTCTTCTGAAATTTAAATGTTATC	102
3н11	CAGAATCCTTCATCATAAAATAATATCAAAATGCAAATCTATTTTTCTAC	153
ЗН11	TCTTGTCTAGCTTCAACTTTCTTCTTCTGCTCATCAATTAGCAATTAATCC  TGCTCATCAATTAGCAATTAATCC	204
3H11 2A11	AAAACCATTATGGCTGCCAAAAATTCAGAGATGAAGTTTGCTATCTTCTTCAAAACCATTATGGCTGCCAAAAATTCAGAGATGAAGTTTGCTATCTTCTTCMETAlaAlaAlaLysAsnSerGluMETLysPheAlaIlePhePhe	255
3H11 2A11	GTTGTTCTTTTGACGACCACTTTAGTTGATATGTCTGGAAATTTCGAAAATG GTTGTTCTTTTGACGACCACTTTAGTTGATATGTCTGGAAATTCGAAAATG ValValLeuLeuThrThrThrLeuValAspMETSerGlyIleSerLysMET	306
3H11 2A11	CAAGTGATGGCTCTTCGAGACATACCCCCACAAGAAACATTGCTGAAAATG CAAGTGATGGCTCTTCGAGACATACCCCCACAAGAAACATTGCTGAAAATG GlnValMETAlaLeuArgAspIleProProGlnGluThrLeuLeuLysMET	357
3H11 2A11	AAGCTACTTCCCACAAATATTTTGGGACTTTGTAACGAACCTTGCAGCTCA AAGCTACTTCCCACAAATATTTTGGGACTTTGTAACGAACCTTGCAGCTCA LysLeuLeuProThrAsnIleLeuGlyLeuCysAsnGluProCysSerSer	408 <sub>.</sub>
3H11 2A11	AACTCTGATTGCATCGGAATTACCCTTTGCCAATTTTGTAAGGAGAGACG AACTCTGATTGCATCGGAATTACCCTTTGCCAATTTTGTAAGGAGAAGACG AsnSerAspCysIleGlyIleThrLeuCysGlnPhyCysLysGluLysThr	<b>4</b> 59
3H11 2A11	GACCAGTATGGTTTAACATACCGTACATGCAACCTGTTGCCTTGAACAATA GACCAGTATGGTTTAACATACCGTACATGCAACCTGTTGCCTTGAACAATA AspGlnTyrGlyLeuThrTyrArgThrCysAsnLeuLeuPro	510
ЗН11 2А11	TCAATGATĆTATCGATCGATCTATCTATCTATTTATCTGTCTCTGCGCGTA TCAATGATCTATCGATCGATCTATCTATCTATTTATCTGTCTCTGCGCGTA	561
3H11 2A11	TAGTGTTGTCTGTACCTTTGGTGTGAAGAATATGAATAAAGGGATACATAT TAGTGTTGTCTGTACCTTTGGTGTGAAGAATGTGAATAAAGGGATACATAT	612
3H11 2A11	${ m ATCTAGATATTCTAGGTAATGTCCTATTGTATTTAAAATTTGTAGCAATATCTAGGTAATGTCCTATTGTATTTAAAATTTGTAGCAATATCTAGCAATATGTCTATTTAAAATTTGTAGCAATATGTAGTAGCAATATGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGT$	663
3H11 2A11		714
3Н11 3Н11		765

FIGURE 5

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(a)																			
2A11		V	M	A	L	R	D	I	P	P	Q	E	Т	L	L				
PAlb		V	С	S	P	F	D	I	P	Ρ	С	G	s	P	L	С	R	C	I
Chick pea inhibitor		V	С	T	-	K	S	I	P	P	-	-	-	-	Q	С	R	С	N
Lima bean inhibitor		L	С	T	-	K	S	I	P	P	-	-	~	-	Q	С	R	С	T
α <sub>1</sub> -antitrypsin	L	G	Α	I	Ď	M	s	I	P	P	E	V							
	,																		
(b)					,	,			1										١
2A11		$\mathbf{T}$	N	I	L	G	L	C	N	E	P	C	S	S	Ŋ	S	D	C	I
PA1b		G	S	P	L	С	R	С	I	Ρ	A	G	L	V	I	G	N	C	R
Barley chloroform/ methanol-soluble protein d		Т	N	L	L	G	N	С	R	-	F	Y	L	ν	Q	Q	Т	С	А
Wheat α-amylase inhibitor 0.28		V	S	A	L	Т	G	С	R		Ą	M	V	K	L	Q	-	C	V
Wheat albumin		V	P	A	L	P	A	C	R	F	L	, –	L	R	L	Q	-	C	N
Millet bi-functional inhibitor		N	N	P	L	D	S	C	R	N	I Y	v	S	A	тĸ	RT	A	<u>c</u>	G
Castor bean 2S small subunit		Ç	Ç	N	L	R	Q	С	C	) E	E Y	I	K	. Ç	) Ç	) V	S	G	Q
Napin small subunit		7	, Č	) N	IL	R	A	<u> </u>	Jc	ζ	) V	J L	N	I F	ζ	) <i>P</i>	. P	Ç	S

### FIGURE 6

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2A11 GENOMIC

0	AAAGAGATTA	CTTTAATCAT GAAAATAATG AAAGAGATTA	CTTTAATCAT	ATAAATATGA	AAGCATACAA AAGATCAGTC ATAAATATGA	AAGCATACAA
84	TGTTATATAT	CTATTTATAA	TTTGATCTAT	TTTTTGTATT	TCAAGTGTAT ACAATATAAA TTTTTGTATT	TCAAGTGTAT
78	ATAAGTATCA	GITITCITAL ICTICITICA ATAAGIAICA	GTTTTCTTAT	AGAGATAAGA	CAATAAAAT AGAAAGACTA	CAATAAAAAT
72	GATAAAAGAA	GAATATTAAA	GAATTAAAGC AATAAGACAA GAATATTAAA	GAATTAAAGC	TATATTGTTA ACTTCTTGTT	TATATTGTTA
99	GTAGGTTAAT	ATTATCAATA TCCTTCAATG GTAGGTTAAT	ATTATCAATA	TTTATATATA	TTTTACTTTC	TAAAATTGTT
0.9	ATTTCATTAG	TATAAATAG	CATAATAGTC ACAAGTAAAA	CATAATAGTC	AGGTAAGCAA ATTGATGGTG	AGGTAAGCAA
54	GATTTTGAGA	AGACTCATCT	CTCAAAGTAA AGCACTTGTT AGACTCATCT GATTTTGAGA		TATAAGTCTG	ATAATCAAGT
44	AAATATAAA	TTTACTTTTG	CTAAACAATC	TATTAACTTA	AATAAATTAT TTGCATATTA	AATAAATTAT
42	ACATGTCAAC	CAAAATATAC	AGAATAATTT	CAATAAAACT AAGACCATAA AGAATAATTT CAAAATATAC		ATCTACACTT
36	TAAATAAAT GTAGAACATG	TAAATAAAT	CACAATGAAT	ACTIGCCCTC	TTATCAGTAT ATACATTAAT	TTATCAGTAT
30	CATAAAATAA	AACACTCTCA	AATTATAATG	TATGTAAATT	GATTTTCACC TGCCTGTATA TATGTAAATT AATTATAATG AACACTCTCA	GATTTTCACC
24	CCTAATAGAA	TTTACAAATA	ATGTGCAAAC	TTATTTGAGC	AGITATITAC TACCTATACA TTATITGAGC	AGTTATTTAC
1 8	AAATTTTGTT	AAAAATGTG	TAAAAGTAAA	TACTTTTTGT	GAAAACATGG ATGTGAAAAA TACTTTTGT TAAAAGTAAA AAAAAATGTG	GAAAACATGG
12(	CTAATCAAGG	TCTACTGATG AGAACATGTG CTAATCAAGG	TCTACTGATG	ATGATCACAT	AAAAGAAATC	TATATATT
ω̃	TTAATTATGA	CGTGAATTTC	TTACGGTGAC	TAGTCAATAT	CTCGAGCCCT TTAAAAAGTA TAGTCAATAT TTACGGTGAC CGTGAATTTC TTAATTATGA	CTCGAGCCCT

# FIGURE 7A

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FIGURE 7B



TGAAGGCGTA AGGTTACTAG AATAATAGTC ATTAAAAAAA GGGGTTATCT TTATAATTGA	3 AATAATAGTC	ATTAAAAAAA	GGGGTTATCT TT	ATAATTGA	9 0
ATAATTGATG AAGTAATGG	AAGTAATGGA GATAATTAGT	GAGCATAAAT	GAGCATAAAT TTTTTAAAA AAATGGACAT	ATGGACAT	102
TTACACTATA ATATTTTATA	A ACACTTTCCC	TTAAACATCT	AGGTATAAAT AATGAGTCTT	TGAGTCTT	108
GTCAAAATCT TAGTAGGAAA AATTCTGTGA	A AATTCTGTGA	AATTTTTTA	GTGAAAACAA AT	ATGATATAAA	114
TATCTTGAAT ACTCATTATT	T TGTTGTCTCA	TTAAAAATCT	TTAAAAATCT TATCTGACCT ATAAAATAAA	AAAATAAA	120
TTATTTGCTC AACTCAAAAT	r AGTTTTCAT	TCTAAAATTA	GTATAATTAT TA	TAGTGAATAT	126
TTAATTAACA TAATTGTAT	TAATTGTATA CTAAGGGGCC TATAAATTGG	TATAAATTGG	ATTCTTCTCA	AAGAAAATA	132
AAATCACCAC ACAACTITCT TCTTCTGCTC ATCAATTAGC AATTAATCCA AAACCATT	T TCTTCTGCTC	ATCAATTAGC	AATTAATCCA AA	ACCATT	137
ATG GCT GCC AAA AAT TCA GAG ATG AAG TTT GCT ATC TTC TTC GTT GTT MET Ala Ala Lys Asn Ser Glu MET Lys Phe Ala Ile Phe Phe Val Val	rca GaG ATG ? Ser Glu MET I	AAG TTT GCT Jys Phe Ala	ATC TTC TTC G Ile Phe Phe V	TT GTT al Val	142
CTT TTG ACG ACC ACT Leu Leu Thr Thr	TTA GGTTCACA/ Leu	AC ACTICICC	GGTTCACAAC ACTTCTCCCT TATTTTGTTT		147
TCTTAATTTC TTGGAAGTCA TATGCATGTG	A TATGCATGTG		TTTGGTATCA TGGTATATAT AT	ATAAAGGAAA	153
ATATTTTCT TAATTACTGG	G TTTTCTAATG		TTTGGTAGGT AATCGGAAAT TATTATGAGA	TTATGAGA	159
TAATGAACTT GCAAAGTCAT		TATTATATAA CTTTTTTTT	ATACTTTGAT TI	TTAAGAATTC	165
ATTTTCTCA TTTTATATA	TITIATATAA ACTTATTITI CAACAGAAAA	CAACAGAAAA	TATTTTCGA-ACTATTCAAA	TATTCAAA	171
CACACCCTAA GACATTACAT ATATATATAT	T ATATATAT		ATACACCCTC CGTTTTATAT TACTTAATGC	CTTAATGC	177

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2433 2553 2390 2493 2074 2188 2236 2284 2332 1954 2014 2134 1834 TTAATCTTAA TCATAATATA TACA GTT GAT ATG TCT GGA ATT TCG AAA ATG CAA Val Asp MET Ser Gly Ile Ser Lys MET Gln GCGCGTATAG TGTTGTCTGT ACCTTTGGTG TGAAGAATAT GAATAAAGGG ATACATATAT CTAGATATAT TCTAGGTAAT GTCCTATTGT ATTTAAAATT TGTAGCAATG ATTGTTTGAA TACTITIGAI TAITATITI AITAIGIA CGITTACAIT ACAGITITCG AAITCITACA CTATTGAGIT GGCCCACCCT TTAAGAATGA TTCAATTAGA GATATGTTTT ACTAAATTAA AATGATTCAT AGCTATATAT TTGGAGGGA GAGAGACAAA CGATATTAAG AAAGGGAGGA CCTATGCTTT AAGACTCTAA ATTTGGCTAT TACTATTTTA CGTTGTAATT TAATGACAAA CATTICATAA IGACTATAGI CIGAACITAA ITAGACAGAC GIAICTATAG ITIGCITACI GAGAGGCGAG GTAAATCTGA AATAGAGAAG AGAAAGGCAA CCAATTTTGA TCATCTATCA GAG Glu ACG GAC CAG TAT GGT TTA ACA TAC CGT ACA TGC AAC CTG TTG CCT Thr Asp Gln Tyr Gly Leu Thr Tyr Arg Thr Cys Asn Leu Leu Pro ATG MET AGC CCA CAA GAA ACA TTG CTG AAA Pro Gln Glu Thr Leu Leu Lys AAG Lys TGC TGA ACAATATCAA TGATCTATCG ATCGATCTAT CTATCTATTT ATCTGTCTCT CCT ' CAA TTT TGT Gln Phe Cys GGA CTT TGT AAC GAA Gly Leu Cys Asn Glu ACC CTT TGC ( Thr Leu Cys ( CCC ACA AAT ATT TIG Pro Thr Asn Ile Leu ATC GGA ATT Ile Gly Ile GCT CTT CGA GAC ATA CCC Ala Leu Arg Asp Ile Pro TGC. Asp TCT GAT CTT Leu Ser MET CTA Len TCA AAC Asn GTG ATG AAG AAG Lys Ser Val

## FIGURE 7C

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FIGURE 7D



TAAAAACATA	CCATGAGTGA	AATAATTATT	CCACATTAAT	TCACGIATIT ATTICACTIA	ATTTCACTTA	2613
TGATACGTAT	TTTTGTTCCT	TTCGCGTAGA	TTTTTGATCC	TTTTCCCTTT	TGAATATTAA	2673
ACATTAAACA	CAAATAATGT	TTATTAATT	AAGTTAATAT	TTTTATTAG	CTATTTATAT	2733
TTTTATTTGA	AATCAAACTT	GATAAATATT	TATAAAGATA	ATTAACAAGT	AATGTGACAC	2793
TAACACCATG	TAATATTATC	TTGTCGTTAT	TTATGATAAT	ATTTTAAAAT	TATAATTTCA	2853
GTTAAAAAT	TATTAAAAA	ACATACTTTT	AAAAGTGAG	TTAGCCTCCG	CTACCCACAT	2913
ACTTATGAAT	TGGACTAGTT	GTTTTTGAC	CCACAAAAAG	AATGGGCTAA	TTAAACCTGA	2973
CCTATCAAAT	TTCAGAATCT	GCATAGATTA	GTCCGAACGA AATGAGTCAG	AATGAGTCAG	CCCGTATTGA	3033
ACAAAATATC	AACAAGGACG	TTATGTAAAG	ATGTTTAAGA	AGGAAAAAAG	ATTTCTAATA	3093
CATATGGACT	TTCAATATCC	CAACTTTGTC	TGGCGATCTG	AACCCTGCTT	AGTTTGTTGA	3153
TCATTAACTT	GTCTTGCTAT	GTATTTAAGA	TTTAAACTTT	ATATGTTTAA	ACTTACAGAA	3213
аатасатата	AATCTCTCAA GACTTGGCAA	GACTTGGCAA	CATAATTTAC	TTTAGTACTT	AAACTACATG	3273
AAAATTTAAA	TATCCTTTTA	ACATCTTTGA	AGTGAATTAA	ATTATCACAA TCCGAGCCTA	TCCGAGCCTA	3333
CACCTTGGAC	GTGGCCGGCA	CTCAAGAACC	AGTGCTGGTC	CCCAAGCTAA	CCCTCATCCT	3393
GACTGACTAC	AAGCGGAAGG	CTAACTTAAG	TATACAAAAG	CTTAAAACTG	AATAAAATAA	3453
ACTTTACAAG	GTTTTAACAC AAATGAACAA	AAATGAACAA	CTTTGAAGAA	AATAATAT	TCAACTAGCC	3513

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FIGURE 7E



TAAAATAGA	taaaataga caactttagt ctttaaaaca tttaataaaa taaatgcaaa atatagactc	CTTTAAAACA	TTTAATAAAA	TAAATGCAAA	ATATAGACTC	3573
TTAACTAAA	TTAACTAAA CTGACTATCT	ATGGAGCCTC	ATGGAGCCTC TAATTGATAA AGATGGAAGT CGGGACAAGA	AGATGGAAGT	CGGGACAAGA	3633
CACGACATC	CTGACTAAAC	TGAGAAGTAA	CTGACTALAC TGAGAAGTAA ATALAATCCC CCGGAAAAAA AGGAGCCTCA	CCGGAAAAAA	AGGAGCCTCA	3693
CATGGCTAA	CATGGCTAA CTCGAACTCG	GGGATATATC	AATGAAGCTC	CTGTTGATGA TCTTGAAGAC	TCTTGAAGAC	3753
TGTCTCTGC	IGTOTOTGO ATCATCAAAA AGATGCAGGO CAAATGGOTO AGTACGTAAA ATGTACGAGT	AGATGCAGGC	CAAATGGCTC	AGTACGTAAA	ATGTACGAGT	3813
TGTAAGGGA	IGTAAGGGA AATTCTAAAG TATAACATAA GCTTGATACT TGAATAAAAG GAAACATACT	TATAACATAA	GCTTGATACT	TGAATAAAAG	GAAACATACT	3873
ACCTCTTTT	CAACTCAACT	CAAATTAAGA	CAACTCAACT CAAATTAAGA ATAAGATACT CAACTCAAAG ATTAGGTATT	CAACTCAAAG	ATTAGGTATT	3933
AACGCAAAT		ACTCAATGAA	GTACAAATTA	ACTCAGGATA	CTCGACTTAA	3993
ATACTCAAC	TCCCGACACT	CAACTGAACT	TCCCGACACT CAACTGAACT CATTTCAATA TAAAGCAGCT TAAAACAAGT	TAAAGCAGCT	TAAAACAAGT	4053
CAGTATAAA	CAGTATAAA GTAAAGTTGT TTAAAAACAT GATGTCAACT CTGTGTGTAT AATAAGGGAT	TTAAAAACAT	GATGTCAACT	CTGTGTGTAT	AATAAGGGAT	4113
CAACATAAC	CAACATAAC TTTGAAATGT	ATATAAAAT	ATATAAAAAT ACAATTAACT GATGTATATA AAAATACATT	GATGTATATA	AAAATACATT	4173
ATCTATGGG	ATCTATGGG AGATTCTCTA ACCGACAACC ATCACTTAAG GGCTAAGATG	ACCGACAACC	ATCACTTAAG	GGCTAAGATG	ATGATATAGC	4233
ATCTACCGC	ATCTACCGC ACGCTGCCAT CGCATCTTAT ACCCGGCCAA AGGTATAAGA CCTGAACTGC	CGCATCTTAT	ACCCGGCCAA	AGGTATAAGA	CCTGAACTGC	4293
TAATGAATC	iaatgaatc cactaataaa ctgitaaaag gaatcatcta aaaagtatga cccttttcta	CTGTTAAAAG	GAATCATCTA	AAAAGTATGA	CCCTTTTCTA	4353
CCATAGTGG	CCATAGIGG CTAACAIGGI ITAIGGGGGC IGIGAGITAI CIGAACICIC CCCCATAICG	TTATGGGGGC	TGTGAGTTAT	CTGAACTCTC	CCCCATATCG	4413

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4473

GIGCTCAATA CTACTCCAAA AAATATACTG CTCTTATGTT TAAAAACATA CTGATTCTGT

GGTTTGAAAT TATTGCTTAA AGCTTAGATT TTTGAAAAGC TCTCTTTTGA AAATCGTAGT

4533

4593

4653

CTCAAAAGTT TGAAAACATT TGCTTAGATT CTTAGGGACT ACTTAGTTCC CTTGTTGGAA

TIC

TICCITITIC TICIATIAAA GCTAGACATA GGCTATGTAG AACTCTAGCT TACCTICCTT

4656

FIGURE 7F

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PG GENOMIC

					I G GENOMIC
60	50	40	30	50	10
\TAACAGTGG	ATAATTAATT	GAAGTCAAA	TGATTAATT !	AAAAGGCAAA 1	AAGCTTCTTA
120	110	100	90	80	70
TTAATCAACT	GCGCTATATA	GTTACCAAT	AGTTTGAAA	raagaaacca '	TAAAGCACCT
180	170	160	150	140	130
AGTATTCGAA	ATATTCTCAA	AGGGCCTAAA	CAATTCGAAA	ТТТААААААА	TGATAATATA
240	230	220	210	200	190
TATCCACCTT	TATAAAATA	IGACTCCAAA	GTCCACCTAT	ACTACCATCC	ATGGTACAAA
300	290	280	270	260	250
AATACT <b>TT</b> TA	AAACTATTTT	TTCTAAATTT	ТАТАТААСАА	ATTGACTACT	TGAGTTTAAA
360	350	340	330	320	310
TTATAAACCA	TGAATATCAT	ATTTAATTTA	АТТААТАТТА	GCGTTCAÄAT	AAAATACATG
420	410	400	390	380	370
AAATTGTCCT	TCTACTATCA	CCACCCAAAT	TCATTAAATC	AACTCATTAA	ACCAACTACC
480	470	460	450	440	430
ATCTAATTTA	CGAAGCACCA	GAGTCCGAAT	GAAATTGTTC	AAAACAAGAC	AAACACTACT
540 *	530	520	510	500	490
ATGAATTTGA 600	TTTTTCAAGC 590	CAATAGTATT 580	AGGACACTTT 570	CATATTTAGG 560	GGTTGAGCCG 550
* TTTTTTTAAAT	AATTCATGCC	ATCCCGAATT	GAAGTAGTAC	TAATGGTAAA	AATTTAAGAT
660	650	640	630	620	610
* ATTATTTTT	ACTTGAATAT	AAATATAAA	GATTTGTTTT	AAATATTTAT	ATAATTATA
720	710	700	690	680	670
* AAGATGAACA 780	A AGGAATAATT	ATTGAGACGA	CCATCACATA		TAAAAATTA 730
CAATAAGTTA	TAAATTAAAT	AATTTATT	ATGGGTAGTA	TTAGTAATGO	TAGTGTTTA
840	830	82	810	800	. 79
* TTGAATTTAA	r attaaatagi	TTTAAAAAA	CGCCATGTAT	AATATTTGAG	AATTATAAC
•					

FIGURE 8A

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850	86	0	870	880	890	900
ACCGTTAGA	TAAATGGTC	A A	TTTTGAACC	CAAAAGTGGA	TGAGAAGGGT	ATTTTAGAGC
910	92	0	930	940	950	960 *
AAT <b>A</b> GGRGG	ATGAGAAGG	A T	PATTTTGAAG	CCAATATGTG	ATGGATGAAG	GATAATTTTG
970	98	0	990	1000	1010	1020
ATCATTTCT	AATACTTT	A A	AGATATT <sup>T</sup> TTA	GGTCATTTTC	CCTTCTTTAG	TTTATAGACT
1030	104	0 1	1050	1060	1070	1080
TAGTGTTAG	TTCATCGA	AT A	АТСАТСТАТТ	ATTTCCGTCT	TAAATTATTT	TTTTTTTTT
1090	11	0.0	1110	1120	1130	1140
AATTTTTT	AAATAAA	rt A	АТТТТТССА	TTTAACTTTG	ATTGTAATTA	ATTTTTAAAA
1150	11	60	1170	1180	1190	1200
TTACCAAC	ATAAATA	AA .	ATTAATATTT	AACAAAGAAT	TGTAACATAA	TATTTTTTA
1210	) 12	20	1230	1240	1250	1260
ATTATTCAA.	PATAAATA A	${f TT}$	ТТАААСАТСА	TATAAAAGAA	ATACGACAAA	AAAATTGAGA
127	0 12	80	1290	1300	1310	1320
CGGGAGAAG.	A CAAGCCAG	AC	AAAAATGTCC	AAGAAACTCT	TTCGTCTAAA	TATCTCTCAT
133	0 13	40	1350	1360	1370	1380
CCAAACTAA	TATAATACO	CA	TTATAATTA	CCATATTGAG	CAACTCAAAC	CCCTTAAAAT
139	0 14	00	1410	1420	) 1430	1440
СТАТАААТА	G ACAAACCO	TT	CCCATACCT	TTATCATAA	TAATAAAA A	A ATCTTTTCA
145	0 1	160	147	148	1490	0 1500 *
ATAGACAAG	AAAAATT T	CCA	TACCATATA	A CAÀTATATC	A TGGTTATCC	A AAGGAATAGT
151	.0 1	520	153	0 154	0 155	0 1560
ATTCTCCTT	C TCATTAT	ГАТ	TTTTGCTTC	а тсаатттса	A CTTGTAGAA	G CAATGTTATT
157	70 1	580	159	0 160	0 161	0 1620
GATGACAA'	ГТ ТАТТСАА	ACA	AGTTTATGA	т аататтстт	G AACAAGAAT	T TGCTCATGAT
16	30 1	640	165	0 166	0 167	0 1680
TTTCAAGC'	гт атстттс	тта	TTTGAGCAA	A AATATTGAA	A GCAACAATA	A TATTGACAAG

#### FIGURE 8B

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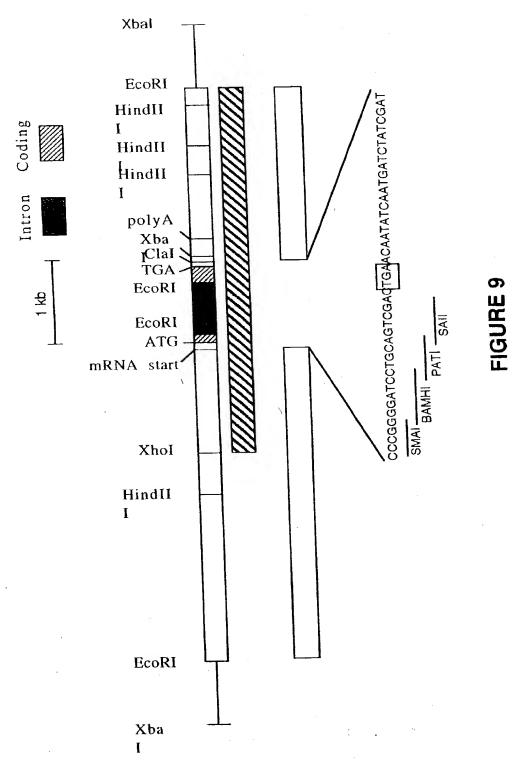
1690	1700	1710	1720	1730	1740
GTTGATAAAA	ATGGGATTAA	AGTGATTAAT	GTACTTAGCT	TTGGAGCTAA	GGGTGATGGA
1750	1760	1770	1780	1790	1800
AAAACATATG	ATAATATTGT	AAGTATTTAA	ATATTGGAAT	ATATTTGTGG	GGATGAAAAT
1810	1820	1830	1840	1850	1860
GATAGAGAAT	ATAAGAATTA	TTTGGAAGGA	TGAAAAGTTA	TATTTTATAA	AGTAGAAAAT
1870	1880	1890	1900	1910	1920
TATTTTCTCG	TTTTTAGTAA	TTAAAGGTGA	AAAATGAGTT	TTCTCGTAAG	CGAGGAAAGT
1930	1940	1950	1960	1970	1980
CATTTTCCAT	GGAACTGTAT	TTTTTTTTA	СТТТТААТАА	CGTCATAGTA	TTTGCTATAC
1990	2000	2010	2020	2030	2040
TCAAGAATAA	GACACTATTA	TTGATGTTTA	GTGCTCGAAA	AGAAATTGAT	AGTAATTTTG
2050	2060	2070	2080	2090	2100
СТААТАТААС	TATCAATTTC	TTATATGTAT	ATTTTCAAC	CAAAATAACA	AAGCGTAATC
2110	) 2120	2130	2140	2150	2160
CAATAAGTGG	G GCCTCTAGAA	TAAAGAGTAA	GTTCTATTA	TTCTTAACCT	TATTTAATTT
2170 TATGGAAAC	2180 C TCGACAAAA	2190 C GACAATGCTC			

FIGURE 8C

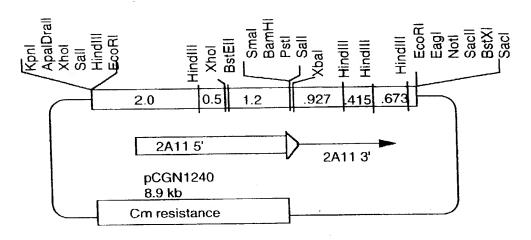
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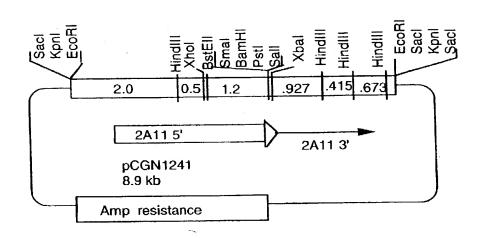
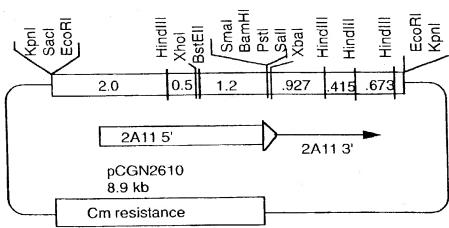
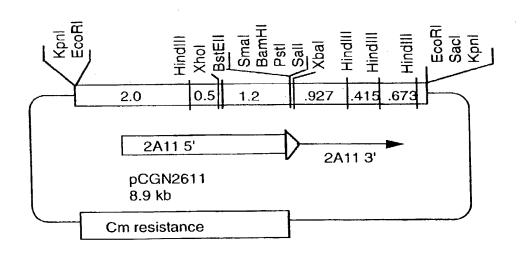


FIGURE 10A







**FIGURE 10B**